

WHAT IS CLAIMED IS:

- 1                   1.       A method of receiving a signal using an integrated circuit, the integrated  
2 circuit comprising a signal path including a low-noise amplifier configured to receive the signal,  
3 a mixer having an input coupled to an output of the low-noise amplifier, and a low-pass filter  
4 having an input coupled to an output of the mixer, the method comprising:  
5                   determining a first signal strength at a first node in the signal path in the  
6 integrated circuit; and  
7                   dynamically changing an impedance of a component in the signal path based on  
8 the first signal strength.
- 1                   2.       The method of claim 1 wherein the signal comprises a preamble portion  
2 and a data portion, the impedance of a component is changed while receiving the preamble  
3 portion, and the method further comprises receiving the data portion of the signal.
- 1                   3.       The method of claim 2 further comprising:  
2                   determining a second signal strength at a second node in the signal path, wherein  
3 the second node in the signal path is after the first node in the signal path.
- 1                   4.       The method of claim 3 wherein the impedance of the component in the  
2 signal path is also changed based on the second signal strength.
- 1                   5.       The method of claim 2 wherein the component in the signal path  
2 comprises a MOS transistor.
- 1                   6.       The method of claim 2 wherein the component in the signal path  
2 comprises a resistor.
- 1                   7.       The method of claim 2 wherein the component in the signal path  
2 comprises a capacitor.
- 1                   8.       The method of claim 4 wherein the component in the signal path is  
2 included in the mixer.

1                   9.     The method of claim 4 wherein the component in the signal path is  
2 included in the low-pass filter.

1                   10.    A method of receiving a signal comprising a preamble portion and a data  
2 portion using an integrated circuit, the integrated circuit comprising a signal path including a  
3 low-noise amplifier configured to receive the signal, a mixer having an input coupled to an  
4 output of the low-noise amplifier, and a low-pass filter having an input coupled to an output of  
5 the mixer, the method comprising:

6                   determining a first signal strength at a first node in the signal path in the  
7 integrated circuit; and

8                   while receiving the preamble portion of the signal, dynamically changing a bias  
9 current in the signal path based on the first signal strength.

1                   11.    The method of claim 10 wherein the method further comprises receiving  
2 the data portion of the signal.

1                   12.    The method of claim 11 further comprising:

2                   determining a second signal strength at a second node in the signal path, wherein  
3 the second node in the signal path is after the first node in the signal path.

1                   13.    The method of claim 12 wherein the bias current in the signal path is also  
2 changed based on the second signal strength.

1                   14.    The method of claim 11 wherein the bias current is a bias current for the  
2 low-noise amplifier.

1                   15.    The method of claim 11 wherein the bias current is a bias current for the  
2 mixer.

1                   16.    The method of claim 11 wherein the bias current is a bias current for the  
2 low-pass filter.

1                   17.     A method of receiving a signal using an integrated circuit, the integrated  
2 circuit comprising a signal path including a first circuit and a second circuit having an input  
3 coupled to an output of the first circuit, the method comprising:

4                   determining a first signal strength at a first node in the signal path in the  
5 integrated circuit, wherein the first node is before the first circuit in the signal path;

6                   dynamically changing a gain of the first circuit based on the first signal strength;  
7 and

8                   dynamically changing an impedance of a component in the second circuit based  
9 on the first signal strength.

1                   18.     The method of claim 17 wherein the signal comprises a preamble portion  
2 and a data portion, the gain and impedance are changed while receiving the preamble portion,  
3 and the method further comprises receiving the data portion of the signal.

1                   19.     The method of claim 18 further comprising:  
2                   determining a second signal strength at a second node in the signal path, wherein  
3 the second node in the signal path is after the second circuit in the signal path.

1                   20.     The method of claim 19 wherein the gain of the first circuit and  
2 impedance of the component in the second circuit is also changed based on the second signal  
3 strength.

1                   21.     The method of claim 18 wherein the first circuit is a low-noise amplifier.

1                   22.     The method of claim 18 wherein the first circuit is a mixer.

1                   23.     A wireless transceiver integrated circuit comprising:  
2 a receiver comprising a signal path, the signal path comprising:  
3                   a low-noise amplifier;  
4                   a mixer having an input coupled to an output of the low-noise amplifier;  
5 and  
6                   a low-pass filter having an input coupled to an output of the mixer; and

7                   a first signal strength indicator circuit coupled to the signal path, and configured  
8   to determine a first signal strength;  
9                   wherein an impedance in the signal path is configured to be dynamically adjusted  
10 in response to the first signal strength.

1                   24.    The wireless transceiver of claim 23 further comprising:  
2                   a second signal strength indicator circuit coupled to the output of the mixer, and  
3 configured to determine a second signal strength,  
4                   wherein the first signal strength indicator is coupled to the output of the low-noise  
5 amplifier, and  
6                   wherein the impedance in the signal path is configured to be adjusted in response  
7 to the first and second signal strengths.

1                   25.    The wireless transceiver of claim 23 further comprising:  
2                   a second signal strength indicator circuit coupled to the output of the low-pass  
3 filter, and configured to determine a second signal strength,  
4                   wherein the first signal strength indicator is coupled to the output of the mixer,  
5 and  
6                   wherein the impedance in the signal path is configured to be adjusted in response  
7 to the first and second signal strengths.

1                   26.    A wireless transceiver integrated circuit comprising:  
2                   a receiver comprising a signal path, the signal path comprising:  
3                   a low-noise amplifier;  
4                   a mixer having an input coupled to an output of the low-noise amplifier;  
5 and  
6                   a low-pass filter having an input coupled to an output of the mixer; and  
7                   a first signal strength indicator circuit coupled to the signal path, and configured  
8 to determine a first signal strength, the first signal strength the strength of a signal comprising a  
9 preamble portion and a data portion;  
10                  wherein a bias current in the signal path is configured to be dynamically adjusted  
11 during the preamble portion of the signal in response to the first signal strength.

1           27.    The wireless transceiver of claim 26 further comprising:  
2           a second signal strength indicator circuit coupled to the output of the mixer, and  
3 configured to determine a second signal strength,  
4           wherein the first signal strength indicator is coupled to the output of the low-noise  
5 amplifier, and  
6           wherein the bias current in the signal path is configured to be adjusted in response  
7 to the first and second signal strengths.

1           28.    The wireless transceiver of claim 26 further comprising:  
2           a second signal strength indicator circuit coupled to the output of the low-pass  
3 filter, and configured to determine a second signal strength,  
4           wherein the first signal strength indicator is coupled to the output of the mixer,  
5 and  
6           wherein the bias current in the signal path is configured to be adjusted in response  
7 to the first and second signal strengths.

1           29.    A wireless transceiver integrated circuit comprising:  
2           a receiver comprising a signal path, the signal path comprising:  
3           a first circuit; and  
4           a second circuit having an input coupled to an output of the first circuit;  
5 and  
6           a first signal strength indicator circuit coupled to the signal path, and configured  
7 to determine a first signal strength;  
8           wherein a gain of the first circuit is configured to be dynamically adjusted in  
9 response to the first signal strength, and  
10          wherein an impedance in the second circuit is configured to be dynamically  
11 adjusted in response to the first signal strength.

1           30.    The wireless transceiver of claim 29 further comprising:  
2           a transmitter comprising:  
3           a power amplifier; and  
4           an output-level-sensing circuit coupled to an output of the power amplifier,

5                    wherein the output-level-sensing circuit is configured to dynamically adjust a gain  
6    of the power amplifier.